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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/734,162

12/15/2003

Ji Yong Park

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STEIN, MCEWEN & BUI, LLP

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EXAMINER

LANDAU, MATTHEW C

ART UNIT

PAPER NUMBER

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/734,162

Applicant(s)

PARK ET AL.

Examiner

Matthew C. Landau

Art Unit

2815

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 April 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-7 and 9-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6 and 12 is/are allowed.
- 6) ☒ Claim(s) 1,3-5,7 and 9-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB08)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Paper No(s)/Mail Date _____
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(c), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(c) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 9, 2008 has been entered.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the width of an activation layer including the LDD region or offset region is shorter than a distance between the primary crystal grain boundaries must be shown or the feature(s) canceled from the claim(s). Figures 5 and 6 show the width of the LDD or offset region (indicated as region "II") is shorter than the distance between the primary crystal grain boundaries, but they do not show that the width of the entire activation layer is smaller than that distance. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must

be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 3-5, 7, and 9-11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The limitation "wherein a width of an activation layer including the LDD region or offset region is shorter than a distance between primary crystal grain boundaries" was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. As shown in Figure 6 of the instant application, the width of the activation layer 13

(the width assumed to be the vertical dimension in Fig. 6) is greater than the distance between the primary grain boundaries. Neither the specification nor the drawings disclose any embodiment wherein this width dimension is smaller than the distance between the primary grain boundaries. Therefore, one of ordinary skill in the art would not believe Applicant had possession of the claimed invention at the time of filing.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 3-5, 7, and 9-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The limitation "wherein a width of an activation layer including the LDD region or offset region is shorter than a distance between primary crystal grain boundaries" renders the claim indefinite. It is unclear what is meant by "width of an activation layer including the LDD region or offset region". Is Applicant attempting to merely claim that the activation layer has a certain width, and that the activation layer includes the LDD or offset region? Or is Applicant actually attempting to claim that the width of the LDD or offset region (width being in the horizontal direction as shown in Fig. 6) is less than the distance between the primary grain boundaries? If the former interpretation is true, then the limitation is rejected under 112, 1st paragraph as described above. If the latter interpretation is desired, then the claims are rejected over art as indicated below. Note that paragraph [0036] of the instant specification states "In this case, the width between "primary" crystal grain boundaries of

polysilicon forming the activation layer 13 should be wider than that of the LDD region II", which appears to indicate that Applicant intended the latter interpretation.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3-5, 7, and 9-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Oka et al. (US Pat. 6,184,541, hereinafter Oka).

Regarding claims 1, 4, 5, 7, 10, and 11, as best the Examiner can ascertain the claimed invention, Figures 1a and 1b of Oka disclose a TFT comprising a light doped drain (LDD) region (portion of region 4 included in width "d", on the right side) and a plurality of primary crystal grain boundaries 2 (boundaries perpendicular to current direction), wherein the TFT is formed so that the primary crystal grain boundaries of a polysilicon substrate 3 are positioned in channel 8, source 6, and drain 7 regions, but not positioned in the LDD region. Regarding claims 4, 7, 10, and 14, Oka discloses the TFT is used in an LCD display. Note that the portion of region 4 denoted by the width "d" can be considered the LDD region, since the other portion of region 4 was doped with additional impurities during heat treatment (col. 3, lines 60-66). Therefore, the other portion of region 4 would no longer be considered "lightly doped". Also, the portion denoted by width "d" could at least be considered an "offset region". Figure 1b of Oka discloses

the portion denoted by width “d” (the LDD or offset region) has a width shorter than the distance between the primary grain boundaries.

Regarding claims 3 and 9, the limitation “the polysilicon substrate is formed by sequential lateral solidification (SLS)” is merely a product-by-process limitation that does not structurally distinguish the claimed invention over the prior art. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966.

Allowable Subject Matter

Claims 6 and 12 are allowed.

The following is an examiner’s statement of reasons for allowance:

Regarding claims 6 and 12, the prior art of record, either singularly or in combination, does not disclose or suggest the combination of limitations including the primary crystal grain boundaries are inclined to a current direction between source and drain regions of the thin film transistor at an angle of $-45^{\circ} \leq \theta \leq 45^{\circ}$.

The indicated allowability of claims 2 and 8 (which have been incorporated into independent claims 1 and 7) is withdrawn in view of the new rejections presented above.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

Applicant's arguments filed March 14, 2008 have been fully considered but they are not persuasive.

Applicant argues regarding the drawing objections that "Applicants note that the claims have been amended in accordance with the Examiner's suggestions. Accordingly, Applicants respectfully request that the objection to the drawings be withdrawn". However, Applicant merely moved the dependent claims into the independent claims. This in no way overcame the drawing objection.

The remainder of Applicant's arguments is moot in light of the new grounds of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew C. Landau whose telephone number is 571-272-1731. The examiner can normally be reached on 9:00AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Parker can be reached on 571-272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew C. Landau/
Primary Examiner, Art Unit 2815